



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
28.11.2018 Bulletin 2018/48

(51) Int Cl.:
F28D 15/02 ^(2006.01)

(43) Date of publication A2:
24.10.2018 Bulletin 2018/43

(21) Application number: **18157243.9**

(22) Date of filing: **16.02.2018**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD TN

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(30) Priority: **21.04.2017 JP 2017084258**

(54) **HEAT PIPE AND METHOD OF MANUFACTURING HEAT PIPE**

(57) A heat pipe includes (1, 5) an inlet port (90, 91). The inlet port (90, 91) includes an unsealed part (90a, 91a) and a sealed part (90b, 91b) that include metal layers that are a first outermost layer (901), intermediate layers (902-905) stacked on the first outermost layer (901), and a second outermost layer (906) stacked on the intermediate layers (902-905). In the unsealed part (90a, 91a), the intermediate layers (902-905) include respective openings (902x-905x) and respective first and second walls (902a-905a, 902b-905b) on first and second opposite sides, respectively, of the openings

(902x-905x). The openings (902x-905x) form an injection channel (908) defined by the first and second outermost layers (901, 906) and the first and second walls (902a-905a, 902b-905b) of the intermediate layers (902-905). The inner wall faces (902s-905s) of the first walls (902a-905a) and the inner wall faces (902s-905s) of the second walls (902b-905b) of at least two adjacent intermediate layers form a first step and a second step, respectively. In the sealed part (90b, 91b), each metal layer contacts one or more of other metal layers to hermetically seal the inlet port (90, 91).

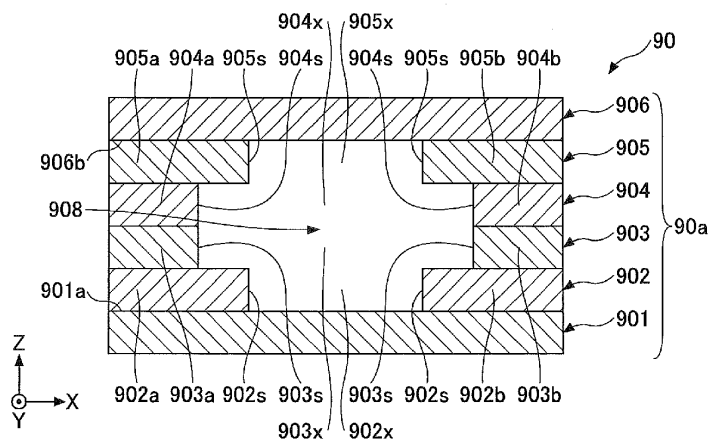


FIG.4

**PARTIAL EUROPEAN SEARCH REPORT**

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of
subsequent proceedings, as the European search report

EP 18 15 7243

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2016/259383 A1 (SHIOGA TAKESHI [JP] ET AL) 8 September 2016 (2016-09-08) * the whole document *	4-7	INV. F28D15/02
X	US 7 051 793 B1 (SCHULZ-HARDER JURGEN [DE]) 30 May 2006 (2006-05-30) * the whole document *	4-7	
A	US 2010/008043 A1 (YAJIMA TAKASHI [JP] ET AL) 14 January 2010 (2010-01-14) * the whole document *	4-7	
A	US 2002/135979 A1 (ESTES KURT A [US] ET AL) 26 September 2002 (2002-09-26) * abstract; figures 3,4 *	4-7	
			TECHNICAL FIELDS SEARCHED (IPC)
			F28D
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search:</p> <p>see sheet C</p>			
Place of search		Date of completion of the search	Examiner
Munich		17 October 2018	Bloch, Gregor
CATEGORY OF CITED DOCUMENTS		<p>T : theory or principle underlying the invention</p> <p>E : earlier patent document, but published on, or after the filing date</p> <p>D : document cited in the application</p> <p>L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>	
<p>X : particularly relevant if taken alone</p> <p>Y : particularly relevant if combined with another document of the same category</p> <p>A : technological background</p> <p>O : non-written disclosure</p> <p>P : intermediate document</p>			

EPO FORM 1503 03/82 (P04E07)

**INCOMPLETE SEARCH
SHEET C**

Application Number

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Claim(s) completely searchable:

4-7

Claim(s) not searched:

1-3

Reason for the limitation of the search:

Claims 1 and 4 have been drafted as separate independent claims for a heat pipe. Contrary to the reasoning given by the applicant in the main request filed on 8.10.2018, these claims do not fall into an exception laid out in Rule 43(2)(c) EPC, because the subject matter of claims 1 and 4 does not provide alternative solutions to a particular problem. Rather, claim 1 refers to the structure of a layered inlet for a heat pipe, while claim 4 further introduces the features of separate regions of layered material perpendicular to the stacking direction. These features solve different technical problems and therefore do fall into the exception laid out in Rule 43(2)(c) EPC. The main request filed on 8.10.2018 can therefore not be followed.

As requested by the applicant in the auxiliary request filed on 8.10.2018, the search has been based on independent apparatus claim 4 and method claim 6 and the claims dependent thereon.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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17-10-2018

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